

# INDEX CARD #5 (BACK & FRONT)

## RADICALS

### SIMPLIFYING RADICALS:

1. Go to  $y = \text{Input } x^2$  OR  $y = \text{Input } x^3$  OR  $y = \text{Input } x^4$
2. Check the radical to see if it is a perfect square, cube, 4<sup>th</sup> ...--- put it in the calculator
  - a. No decimal STOP
  - b. Decimal continue
3. Divide the number under the radical by 2
4. Look at the table (2<sup>nd</sup> Graph) and see if the number that you got when you divided is there. If it is STOP  
Write them each under a radical
5. If NOT then look for the 1<sup>st</sup> number smaller than what you got when you divided write down the number & all of those smaller.
6. Divide each one into the number under the radical until one goes in without a decimal
7. Write each number under its own radical
8. Look to the left of the number from the table to see what the square root, cube root, 4<sup>th</sup> ... of the perfect square that worked is. That number comes out of the radical and the other stays in.
9. As for the variables.... You divide the index into the exponent  
If it divides evenly then it comes out of the radical as the variable raised to the quotient
10. If NOT then decrease the exponent by 1 until the index will divide into it. When found rewrite the variable to the two exponents

### MULTIPLYING/DIVIDING RADICALS:

1. MULTIPLY/DIVIDE THE COEFFICIENTS - MULTIPLY/DIVIDE  
THE RADICANS MULT – ADD EXPONENTS  
DIVIDE – SUBTRACT EXPONENTS
2. SIMPLIFY THE RADICALS

### ADDING/SUBTRACTING RADICALS:

1. SIMPLIFY EACH RADICAL
2. ADD ONLY IF THE RADICANS & COEFFICIENTS (VARIABLES  
& EXPONENTS) MATCH
3. LEAVE THE RADICAN THE SAME – ADD ONLY  
COEFFICIENTS

**RATIONALIZING THE DENOMINATOR:**

***IF THE DENOMINATOR IS NOT A BINOMIAL – MULTIPLY THE NUMERATOR & DENOMINATOR BY THE RADICAL ONLY***

***IF THE DENOMINATOR IS A BINOMIAL – MULTIPLY THE NUMERATOR & DENOMINATOR BY THE CONJUGATE (SWITCH THE SIGN IN THE MIDDLE)***